

Serial No. 09/996,557
Docket No. 2000-367314US

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) An optical module comprising:
a ~~an~~ photoreceptive optical active element; and
an optical waveguide formed separately from said photoreceptive optical active element, said optical waveguide being optically coupled to said photoreceptive optical active element and including a spot-size conversion region, configured by gradually increasing ~~or reducing~~ the width or the thickness, or both, of said optical waveguide, at the end or inside of said optical waveguide adjacent to where said photoreceptive optical active element is coupled.
- 2-3. (Canceled)
4. (Previously presented) An optical module for coupling to an optical active element, said optical module comprising:
an optical waveguide having a spot-size conversion region at an end thereof adapted for coupling to the optical active element, or inside of said optical waveguide, said conversion region configured by gradually increasing or reducing the width or the thickness, or both, of said optical waveguide; and
an optical coupling part having a refractive index matching resin therein, said resin having the same-level refractive index as that of said optical waveguide, said optical coupling part being adapted to be positioned between said optical waveguide and the optical active

Serial No. 09/996,557
Docket No. 2000-367314US

element.

5. (Previously presented) An optical module comprising first and second optical active elements; and an optical waveguide having spot-size conversion regions, wherein:

said optical waveguide comprises a Y-type branch optical waveguide having a single-mode waveguide section branched into first and second branch waveguide sections,

said optical active elements include a light-emitting element optically coupled to said first branch waveguide section, and a photoreceptive element optically coupled to said second branch waveguide section; and

said spot-size conversion regions include:

a first spot-size conversion region configured by reducing the width or the thickness, or both, of said waveguide on the light-emitting element side thereof, said first spot-size conversion region being provided at the end or inside of said first branch waveguide section; and

a second spot-size conversion region configured by increasing the width or the thickness, or both, of said waveguide on the photoreceptive element side thereof, said second spot-size conversion region being provided at the end or inside of said second branch waveguide section.

6. (Previously presented) The optical module according to claim 5, further comprising a refractive index matching resin having the same-level refractive index as that of said single-mode waveguide, said resin being adapted to be between said single-mode waveguide section

Serial No. 09/996,557
Docket No. 2000-367314US

coupled to ~~an a photoreceptive optical active element, and a second branch waveguide~~
section, adapted to be coupled to a second optical element; and

optical coupling parts having a refractive index matching resin therein, said resin
having the same-level refractive index as that of said optical waveguide, said optical coupling
parts being adapted to be positioned between said optical waveguide and the optical active
elements, wherein:

_____ said first branch waveguide section includes a first spot-size conversion region
configured by increasing at least one of the width and the thickness of said waveguide, said
first spot-size conversion region being provided at the end or inside of said first branch
waveguide section; and

_____ said second branch waveguide section includes a second spot-size conversion region
configured by decreasing at least one of the width and the thickness of said waveguide, said
second spot-size conversion region being provided at the end or inside of said second branch
waveguide section.

17-19. (Canceled)

20. (Currently amended) The An optical module according to claim 16, further
comprising:

_____ a Y-type branch optical waveguide having a single mode waveguide section branched
into first and second branch waveguide sections, each waveguide section adapted to be
coupled to an optical active element;